

Leak Detection & Repair

Blue Print to Water Resource Management



COMMONWEALTH UTILITIES CORPORATION WATER DIVISION

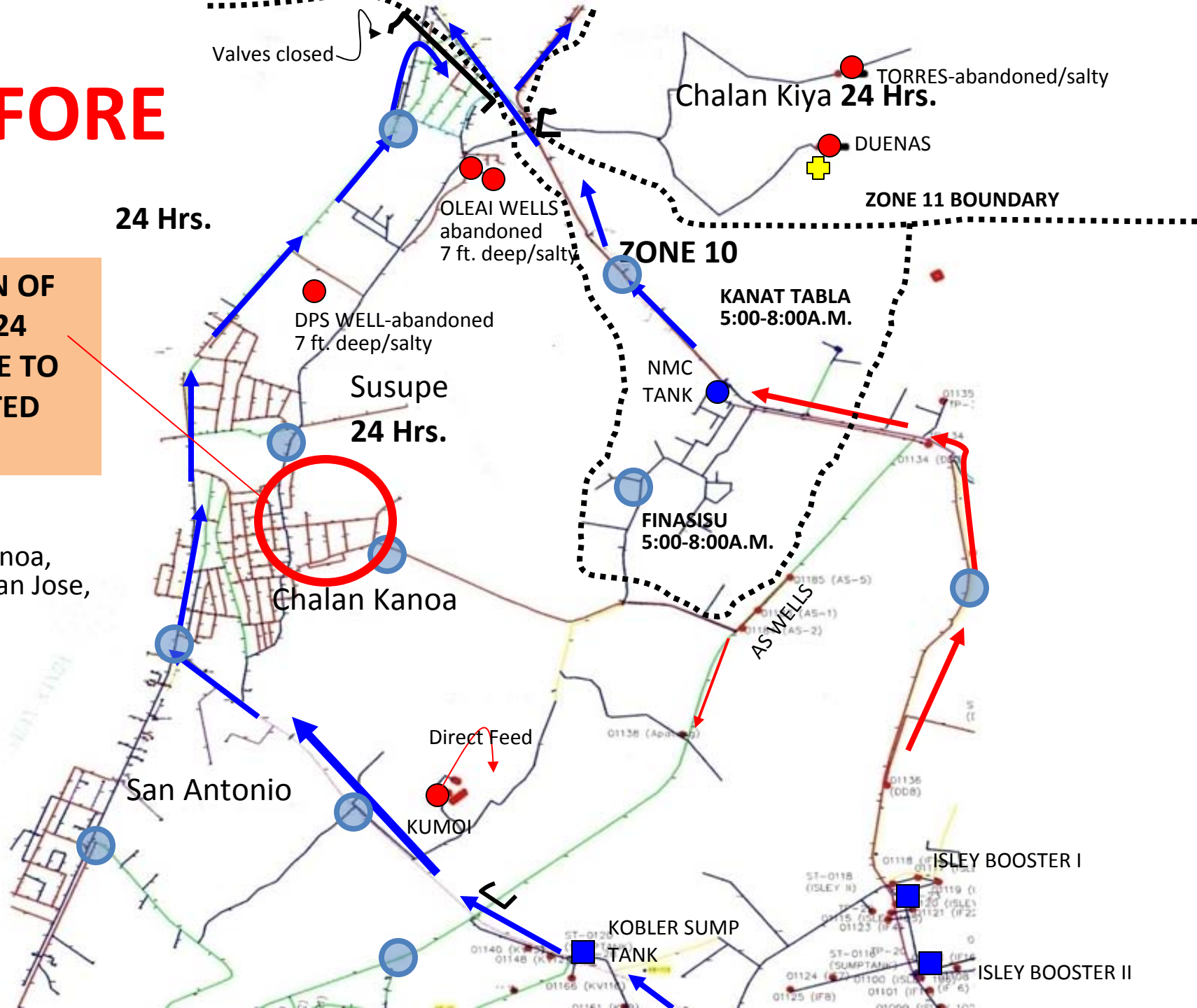
Background

- In 2003, The CNMI Water Task Force (WTF) was created to assist CUC make significant water infrastructure improvements
- The US Army Corps of Engineers was commissioned to develop plans and recommendations for WTF to achieve a pressurized system
- Leak Detection of the entire system was one of the recommended priorities
- In 2005, WTF contracted services for Island wide leak detection and repair phase I
- In 2007, leak detection and repair phase II commenced for the villages of Chalan Kanoa, Susupe and San Antonio.

BEFORE

PORCION OF CK NOT 24 HRS. DUE TO SUSPECTED LEAKS

ZONE 9a
Chalan Kanoa, Susupe, San Jose, Oleai



BEFORE

Valve opens everyday
9:00p.m. to 3:00p.m.
coastal side only

ZONE 10

Kanat Tabla, Finasisu,
Chalan Laulau, Lower
Gualo Rai, South Garapan
(Middle & Beach Road)

ZONE 9a

Valves closed
Oleai

FROM KOBLER
SUMP AND ISLEY
RESERVOIR

Every Other Day
12:00p.m. to 9:00p.m.
Middle Road & behind Beach Road

GR-154
GR-151
GR-4 GR-5
STORAGE TANK 0.20MG
ZONE 12

Chalan Rueda road
can be explored for
new well

Chalan Kiya

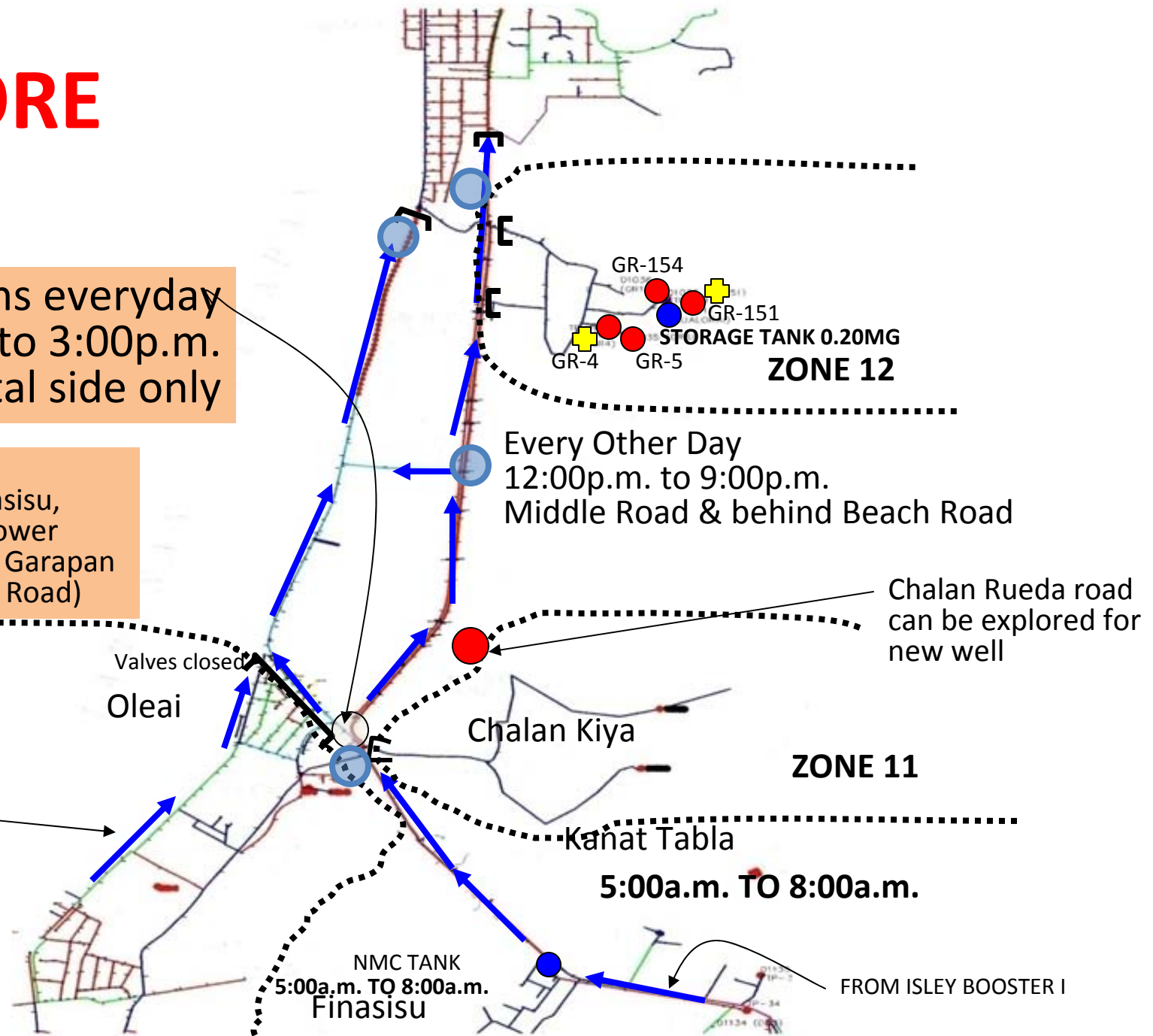
ZONE 11

Kanat Tabla

5:00a.m. TO 8:00a.m.

NMC TANK
5:00a.m. TO 8:00a.m.
Finasisu

FROM ISLEY BOOSTER I



Leak Detection and Repair Phase II

BEFORE LEAK DETECTION

- Chalan Kanoa & Susupe were not receiving 24 hours supply, pressure is lost along the distribution lines coming from numerous Isley Wells.
- Erratic water pressures in San Antonio
- Approximately 1.0MGD production is being lost everyday
- Challenges include multiple & undocumented mains.

Basic Plan of Approach

- 1. Begin with the Source – Water Division ensuring all wells are operating**
- 2. Leak Detect using High Pressures on the mainlines – Contractor uses ground microphones to identify leaks**
- 3. Utilizing “Block by Block” strategy – Controlling flow into a small portion of the distribution system & exerting high pressures on the mains**
- 4. Cut and Cap old mains**

After the Leak Detection Phase II is completed for Chalan Kanoa & Susupe Villages on April 8, 2008:

- **100% of the residents of Chalan Kanoa & Susupe are now receiving 24 hour water service**
- **2"-18" pipe repaired/capped at 267 locations**
- **225 Valves (2"-16") replaced**
- **1.2 million gallons per day recovered**

Isley Reservoir Tank is able to maintain stable water level

Cont. WTF Phase II Leak Detection – Improved Pressure and Water Supply

- Chalan Kanoa – from 4-6 hrs. to **24** hrs.
- Susupe – from 4-6 hrs. to **24** hrs.
- San Antonio - from 5-35 psi to **30-50** psi

LEAK DETECTION AND SURVEY

Leak Detection and Repair – Phase II

Leak Detection and Survey (Point to Point)

Chalan Kanoa



Leak Detection and Repair – Phase II

Leak Detection and Survey (Ground Microphone)

Susupe



LEAK REPAIR

ГЕВК РЕПВИР

Leak Detection and Repair - Phase II

Leak Repair – 12" Ø PVC

Chalan Kanoa



Leak Detection and Repair - Phase II

Leak Repair –2" x 1-1/4" dia PVC

Susupe



Leak Detection and Repair - Phase II

Leak Repair –6" x 2" Service Saddle and 2" Corporation Stop
San Antonio



Leak Detection and Repair – Phase II

Leak Repair – 6" x 2" Service Saddle and 2" Corporation Stop
Chalan Kanoa



CUT AND CAP

Leak Detection and Repair – Phase II

Cut & Cap –6" ACP

Susupe



Leak Detection and Repair – Phase II

Cut & Cap 6" ACP

Susupe



Leak Detection and Repair – Phase II

Cut & Cap – Undocumented Lines

Chalan Kanoa



Leak Detection and Repair – Phase II

Cut & Cap – Undocumented Lines
San Antonio, Across from PIC



VALVE INSTALLATION

Leak Detection and Repair - Phase 2

Butterfly Valve Installation—18" Ø Butterfly Valve
As Perdido



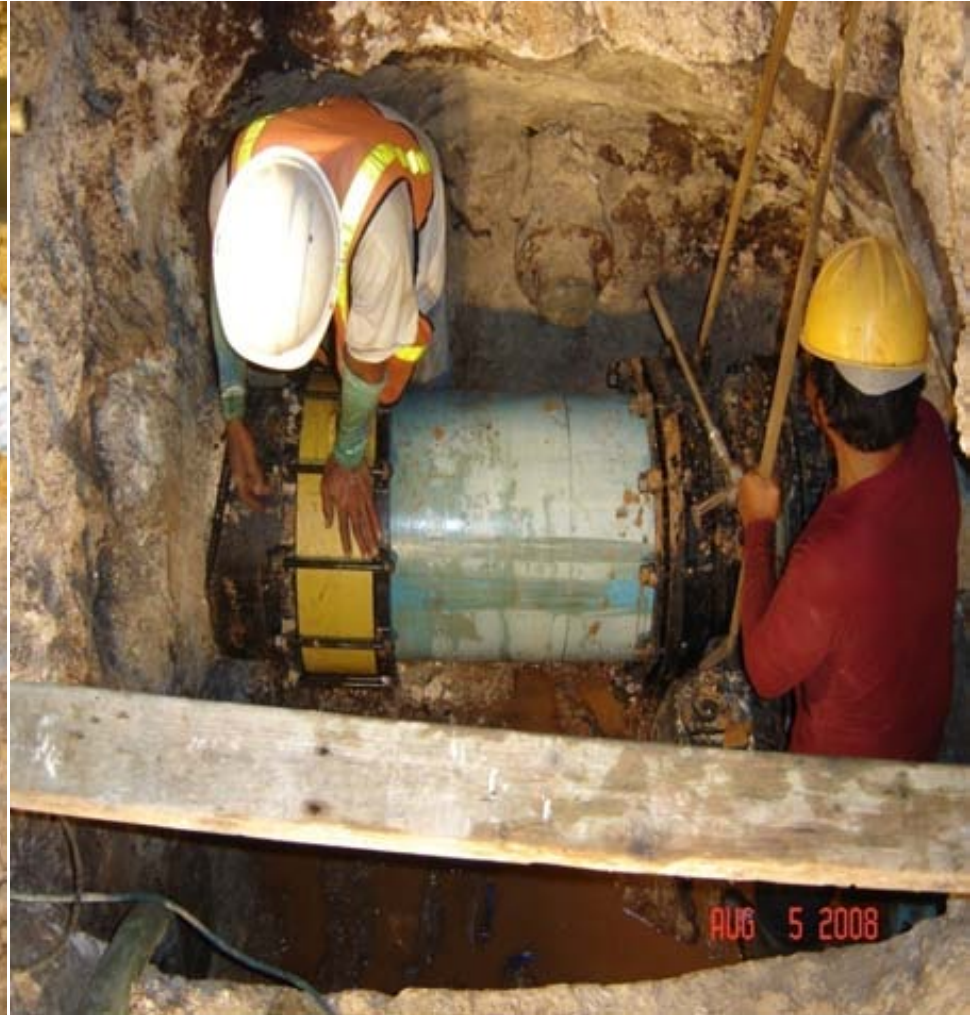
Leak Detection and Repair - Phase II

Butterfly Valve Installation—18" Ø Butterfly Valve
As Perdido



Leak Detection and Repair – Phase II

Butterfly Valve Installation—18" Ø Butterfly Valve
As Perdido



GATE VALVE REPLACEMENT

Leak Detection and Repair - Phase II

Gate Valve Replacement –12" Ø Gate Valve
As Perdido



Leak Detection and Repair - Phase II

Gate Valve Replacement—8" Ø Gate Valve
Koblerville



Leak Detection and Repair - Phase II

Gate Valve Replacement –6" and 12" Ø Gate Valve

San Antonio



REPLACE HYDRANT ASSEMBLIES

Leak Detection and Repair - Phase II

Replacement of Fire Hydrant & Assemblies

Chalan Kanoa



Leak Detection and Repair – Phase II

Replacement of Fire Hydrant & Assemblies
Koblerville



Leak Detection and Repair - Phase II

Replacement of Fire Hydrant & Assemblies

San Antonio



VALVE BOX RAISING

Leak Detection and Repair - Phase II

Valve Box Raising
Chalan Kanoa



POTHOLING

Leak Detection and Repair - Phase II

Potholing
Susupe



Leak Detection and Repair - Phase 2

Potholing

San Antonio



ASPHALT RESTORATION

ASPHALT RESTORATION

Leak Detection and Repair - Phase II

Asphalt Restoration
Chalan Kanoa



Leak Detection and Repair - Phase II

Asphalt Restoration

Chalan Piao



Leak Detection and Repair - Phase II

Asphalt Restoration
San Antonio



Leak Detection and Repair - Phase II

Asphalt Restoration



LEAK DETECTION IS A WATER TASK FORCE PROJECT

At the helm is
Mr. Pete
Sasamoto, P.E.



